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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,740	09/04/2003	Mario A. Recio	DP-308368	5231
22851	7590	07/13/2005	EXAMINER	
DELPHI TECHNOLOGIES, INC.			ELLINGTON, ALANDRA	
M/C 480-410-202			ART UNIT	
PO BOX 5052			PAPER NUMBER	
TROY, MI 48007			2855	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/654,740

Applicant(s)

RECIO ET AL.

Examiner

Alandra Ellington

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on amendment filed 4/4/05.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 5, 9 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 September 2003 and 04 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)       |
| Paper No(s)/Mail Date _____   | 6) <input checked="" type="checkbox"/> Other: <u>Replacement drawing sheets</u> . |

## **Non-Final Rejection**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shitanoki (4,789,342) in view of Torii et al (5,875,588) (hereinafter Torii).

a. With respect to claim 1, Shitanoki discloses a position sensor with a housing 16, a main gear 17 located within said housing 16, an auxiliary gear 22,23 located within the housing 16, the auxiliary gear 22,23 being rotatably mounted to an axle 21, the main gear 17 being gearingly meshed with the auxiliary gear 22,23, wherein rotation of the main gear 17 causes rotation of the auxiliary gear 22,23, and wherein the auxiliary gear 17 is bearingly supported on the axle 21 (col. 4 lines 8-33 {Figs. 7(a)-7(e)}). However, Shitanoki does not teach a ring shield located within the housing, the ring shield having a ring shield wall, a plate connected to the ring shield wall, and an axle connected to the plate in perpendicular relation thereto. Torii teaches a ring shield 56 located within the housing 34,36, the ring shield 56 having a ring shield wall, a plate 56 connected to the ring shield wall, and an axle connected to the plate 56 in perpendicular relation thereto (col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-10C}).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shitanoki with the teachings of Torii to include a ring shield located within the housing, the ring shield having a ring shield wall, a plate connected to the ring shield wall, and an axle connected to the plate in perpendicular relation thereto for the purpose of protecting the gear members (see Torii, col. 6 lines 29-37, 59-67, col. 7 lines 1-61 {Figs. 1, 4-8, 10A-10C}).

b. With respect to claim 2, Torii teaches an axle disposed at an axial center of the ring shield 56, and an auxiliary gear 54 free of contact with respect to the ring shield 56 (col. 6 lines 29-37, 59-67, col. 7 lines 23-52 {Figs. 1, 4}).

c. With respect to claim 3, Torii teaches a position sensor 30 with a ring shield 56 with a low rise portion 66, 68 adjacent a gear 44, 46, 54 and a high rise portion 62, 66 distally disposed in relation to the gear 44, 45, 54 wherein the plate 62 is connected to the high rise portion 62, 66 of the ring shield wall (col. 6 lines 29-37, 59-67, col. 7 lines 1-61 {Figs. 1, 4-8, 10A-10C}).

d. With respect to claim 4, Torii teaches high and low rise portions 62, 66, 68 and wherein the plate 62 is truncated by a truncation edge 66, a wall edge coinciding with the truncation edge 66 ({Figs. 1, 4-8, 10A-10C}).

e. With respect to claim 6, Shitanoki discloses a position sensor with a housing 16, a main gear 17 located within said housing 16, an auxiliary gear 22, 23 located within the housing 16, the auxiliary gear 22, 23 being rotatably mounted to an axle 21, the main gear 17 being gearingly meshed with the auxiliary gear 22, 23, wherein rotation of the main gear 17 causes rotation of the

auxiliary gear 22,23, and wherein the auxiliary gear 17 is bearingly supported on the axle 21 (col. 4 lines 8-33 {Figs. 7(a)-7(e)}). However, Shitanoki does not teach a ring shield located within the housing, the ring shield having a ring shield wall, a plate connected to the ring shield wall, and an axle connected to the plate in perpendicular relation thereto. Torii teaches a ring shield 56 located within the housing 34,36, the ring shield 56 having a ring shield wall, a plate 56 connected to the ring shield wall, and an axle connected to the plate 56 in perpendicular relation thereto, and an auxiliary gear 54 free of contact with respect to the ring shield 56 (col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4}). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shitanoki with the teachings of Torii to include a ring shield located within the housing, the ring shield having a ring shield wall, a plate connected to the ring shield wall, and an axle connected to the plate in perpendicular relation thereto and an auxiliary gear free of contact with respect to the ring shield for the purpose of protecting the gear members (see Torii, col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4}).

f. With respect to claim 7, Torii teaches a position sensor 30 with a ring shield 56 with a low rise portion 66,68 adjacent a gear 44,46,54 and a high rise portion 62,66 distally disposed in relation to the gear 44,45,54 wherein the plate 62 is connected to the high rise portion 62,66 of the ring shield wall, the plate 62 is truncated by a truncation edge 66, and a wall edge coinciding with the truncation edge 66 (col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-

10C)). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shitanoki with the teachings of Torii to include a ring shield with a low rise portion adjacent a gear and a high rise portion distally disposed in relation to the gear wherein the plate is connected to the high rise portion of the ring shield wall, the plate is truncated by a truncation edge and a wall edge coinciding with the truncation edge for the purpose of supporting and protecting the gears during operation (see Torii, col. 6 lines 29-37, 59-67, col. 7 lines 1-61 {Figs. 1, 4-8, 10A-10C}).

g. With respect to claim 8, Torii teaches an axle disposed at an axial center of the ring shield 56 ({Figs. 1, 4}).

h. With respect to claim 10, Shitanoki discloses a position sensor with a housing 16, a main gear 17 located within the housing 16, an auxiliary gear 22, 23 located within said housing 16, said auxiliary gear 22, 23 being rotatably mounted to said axle 21, said main gear 17 being gearingly meshed with said auxiliary gear 22, 23 ({Figs. 7(a)-7(e)}), wherein rotation of said main gear 17 causes rotation of said auxiliary gear 22, 23, wherein said auxiliary gear 22, 23 is bearingly supported on said axle 21 (col. 4 lines 8-33), and wherein said auxiliary gear 22, 23 is free of contact with respect to said ring shield 25 (col. 3 lines 21-28 {Figs. 2, 3, 7(a)}). However, Shitanoki does not teach a ring shield having a low rise portion adjacent a main gear, a high rise portion distally disposed in relation to the main gear, and a plate truncated by a truncated edge, a wall edge coinciding with the truncation edge.

Torii teaches a position sensor 30 with a ring shield 56 located within the housing 34,36, the ring shield 56 having a ring shield wall, a plate 56 connected to the ring shield wall (col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4}), the ring shield 56 with a low rise portion 66,68 adjacent a gear 44,46,54 and a high rise portion 62,66 distally disposed in relation to the gear 44,45,54 wherein the plate 62 is connected to the high rise portion 62,66 of the ring shield wall, the plate 62 is truncated by a truncation edge 66, and a wall edge coinciding with the truncation edge 66 (col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-10C}).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shitanoki with the teachings of Torii to include a ring shield located within the housing, the ring shield having a ring shield wall, a plate connected to the ring shield wall, ring shield with a low rise portion adjacent a gear and a high rise portion distally disposed in relation to the gear wherein the plate is connected to the high rise portion of the ring shield wall, the plate is truncated by a truncation edge and a wall edge coinciding with the truncation edge for the purpose of supporting and protecting the gears during operation (see Torii, col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-10C}).

***Allowable Subject Matter***

3. Claims 5, 9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: The reasons for the indication of allowable subject matter are based on the inclusion of *a second annular magnet located within an auxiliary gear, and sensing electronics within a housing detecting magnetic field rotation of a first and second magnets in response to an induced rotation of the main gear.*

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alandra Ellington whose telephone number is (571) 272-2178. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2855

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alandra Ellington  
Art Unit 2855



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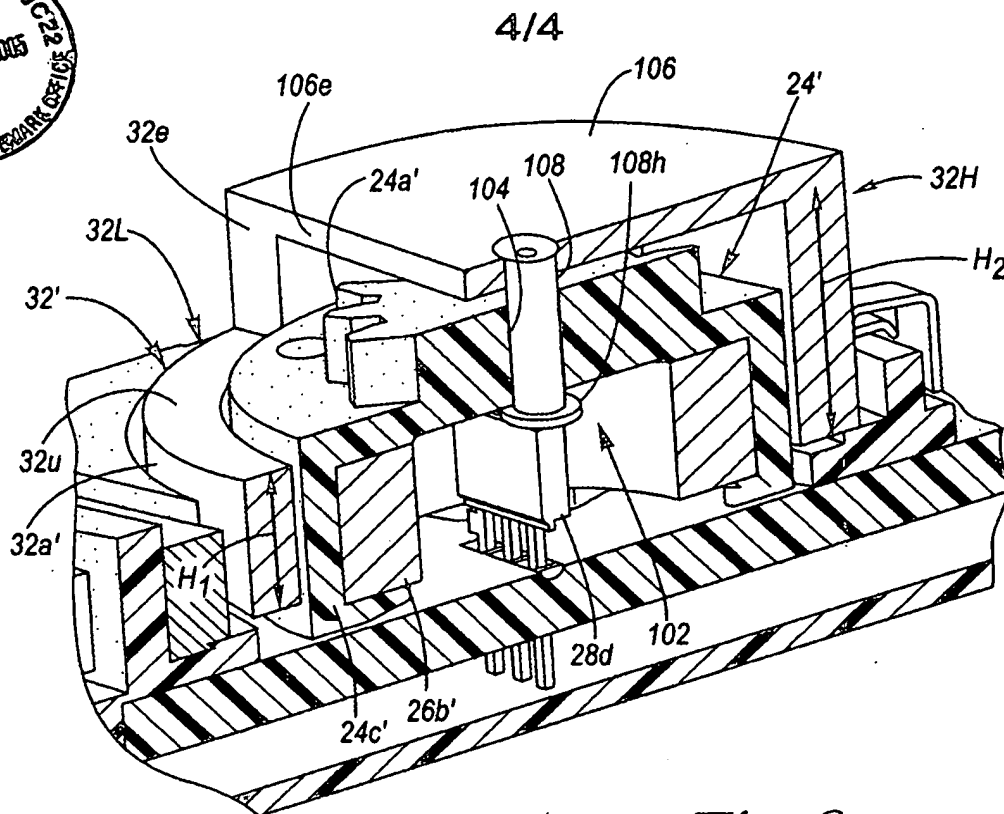
**HARSHAD PATEL**  
**PRIMARY EXAMINER**

approved by Examiner Ellington *EE*  
 7/11/05

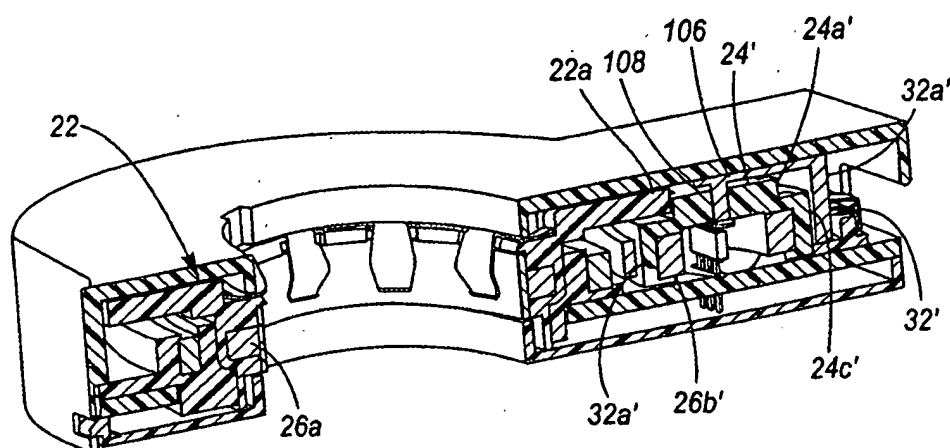
Appl. No. 10/654,740  
 Amdt. Dated March 31, 2005  
 Reply to Office Action of January 12, 2005

**DP-308368**

REPLACEMENT SHEET



*Fig. 8*



*Fig. 9*